

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and following remarks.

By the foregoing amendment, claims 1 and 8 have been amended. Claim 2 was previously canceled. Thus, claims 1 and 3-17 are currently pending in the application and subject to examination.

In the Office Action mailed February 24, 2006, the Examiner rejected claims 1, 4, 5, 8, 11, 12 and 17 under 35 USC § 103(a) as being unpatentable over Applicant's Admitted Prior Art ("AAPA") in view of US Patent No. 5,087,964 to Hatta ("Hatta"), in view of US Patent No. 5,249,055 to Masuda et al. ("Masuda"), in view of US Patent No. 6,022,792 to Ishii et al. ("Ishii"), in view of the Examiner's Official Notice; claims 3, 9, 10, 15 and 16 under 35 USC § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of Ishii, in view of the Examiner's Official Notice and further in view of US Patent No. 5,220,210 to Miwada ("Miwada"); claims 6 and 13 under 35 USC § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of Ishii, in view of the Examiner's Official Notice and further in view of US Patent No. 6,078,685 to Kawai et al. ("Kawai") in further view of US Patent No. 5,773,814 to Phillips et al. ("Phillips"); and claims 7 and 14 under 35 USC § 103(a) as being unpatentable over the AAPA in view of Hatta, in view of Masuda, in view of Ishii, in view of the Examiner's Official Notice, in view of Kawai in view of Phillips, and further view of US Patent No. 5,648,653 to Sakamoto et al. ("Sakamoto"). It is noted that claims 1 and 8 have been amended. To the extent that the rejections remain applicable to the claims currently pending, Applicant hereby traverses the rejections, as follows.

In claims 1 and 8, as amended, at least one photodiode group composed of a plurality of photodiodes is formed only in a central area of a surface of an elongated semiconductor substrate along a longitudinal direction of the semiconductor substrate, a peripheral circuit section is formed in a peripheral area of the surface of the semiconductor substrate, the peripheral area being external to the central area in the longitudinal direction of the semiconductor substrate, and a plurality of bonding pads are formed on the surface of the semiconductor substrate externally, in the longitudinal direction, to the central area of the surface of the semiconductor substrate, and each of the bonding pads has an exposed central surface area.

Thus, in claims 1 and 8, the photodiodes are formed only in the central portion of the semiconductor substrate having the elongated shape, and the peripheral circuit and the bonding pads are formed outside the central portion of the substrate. Therefore, it is possible to prevent light that enters through a package window and is reflected at the surface of the bonding pads from entering the photodiodes. In addition, photo-sensors can be disposed widely along the lateral direction, thereby reducing noise without decreasing the sensitivity.

The Applicants submit that none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of an image pickup section formed on said semiconductor substrate, said image pickup section including (i) at least one photodiode group composed of a plurality of photodiodes formed only in a central area of a surface of said semiconductor substrate along a longitudinal direction of said semiconductor substrate and (ii) a charge transfer element provided for each said photodiode group; a peripheral circuit section formed in a peripheral area of said

surface of said semiconductor substrate, said peripheral area being external to said central area in the longitudinal direction of said semiconductor substrate; a plurality of bonding pads formed on the surface of said semiconductor substrate externally, in the longitudinal direction, to the central area of the surface of the semiconductor substrate, each of said bonding pads having an exposed central surface area, as recited in claim 1, as amended.

For at least this reason, the Applicants submit that claim 1, as amended, is allowable over the cited prior art. As claim 1 is allowable over the cited prior art, the Applicants submit that claims 3-7 and 17, which depend from allowable claim 1, are likewise allowable over the cited prior art.

Similarly to as discussed above with regard to claim 1, the Applicant submits that claim 8 is allowable over the cited prior art at least because none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of a linear image sensor chip fixed in the inner space of said package, said linear image sensor chip including (1) a semiconductor substrate having an elongated shape along a direction generally coincident with the longitudinal direction of said bottom portion, (2) an image pickup section formed on said semiconductor substrate, said image pickup section including (i) at least one photodiode group composed of a plurality of photodiodes formed only in a central area of a surface of said semiconductor substrate along a longitudinal direction of said semiconductor substrate and (ii) a charge transfer element provided for each said photodiode group, (3) a peripheral circuit section formed in a peripheral area of said surface of the semiconductor substrate, said peripheral area being external to said central area in the longitudinal direction of said semiconductor

substrate, (4) a plurality of bonding pads formed on the surface of said semiconductor substrate externally, in the longitudinal direction, to the central area of the surface of the semiconductor substrate, each of said bonding pads having an exposed central surface area, (5) a plurality of metal lines formed on the surface of said semiconductor substrate, each of said metal lines having an end connected to one of said bonding pads and another end connected to said peripheral circuit or said charge transfer element, (6) a light-suppressing layer formed above said semiconductor substrate and covering a peripheral area of each of said plurality of photodiodes covering a peripheral area of each of said plurality of photodiodes, as recited in claim 8, as amended.

As claim 8 is allowable over the cited prior art, the Applicants submit that claims 9-16, which depend from allowable claim 8, are likewise allowable over the cited prior art.

CONCLUSION

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this

communication to Deposit Account No. 01-2300, referencing docket number 107317-00032.

Respectfully submitted,

Arent Fox, PLLC


Michele L. Connell
Registration No. 52,763

Customer No. 004372
1050 Connecticut Ave., N.W.
Suite 400
Washington, D.C. 20036-5339
Telephone No. (202) 857-6104
Facsimile No. (202) 857-6395

WLC/MLC